

Impacts of wastewater discharge on the quality of water resources and wastewater management

Department of Integrated Management of Environment, Division of Water Resources Management

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Beckground Information

Water resources of Georgia are divided in two basins:

- Black Sea Basin (West Georgia)
- Caspian Sea Basin (East Georgia)

INLAND WATER – there is 26060 rivers (total length 59000 km), of which 99% are short (less than 25 km long). These resources are however distributed unevenly, being predominately located in the west.

Main Transbaoundary tributaries are:

Mtkvari(Ar, Az, Ge,),

Iori (Ge, Az),

Alazani (Ge, Az),

Debet (Ar, Ge),

Khrami (Ar, Ge, Az)

Chorokh (Tu, Ge)

Hydrological Network of Georgia



Legislative Base

- Law on Environmental protection
- Law on Environmental Impact;
- Law on Entrepreneur Control;
- Law on State Control of Environmental Protection;
- Technical environmental regulation (enterprises which are not applicants of EIA permits)
- Law on Water:
 - Regulation on the protection of Georgian surface waters from pollution
 - Regulation on water protection zones
 - Methodology on the calculation on Maximal Admissible Discharges of pollutants in the wastewater discharged to the surface water

Responsibility for the wastewater and surface water quality

Water Resources Management Division (Department of Integrated Management of Environment)

- Implements governmental policy of water protection and pollution prevention;
- Establishes maximum allowable concentration for waste water discharges;
- Conducts state inventory of water use and wastewater.

National Environmental Agency

Monitors of surface water quality and quantity

Inspection of Environmental Protection

Controls of state of water pollution

Service of License and Permits


Issues permits for impacts on the environment, which includes approved maximum allowable concentration for water discharge

State Environmental Inspection

- There is no systematic control of wastewater discharges, (Law on Entrepreneur Control)

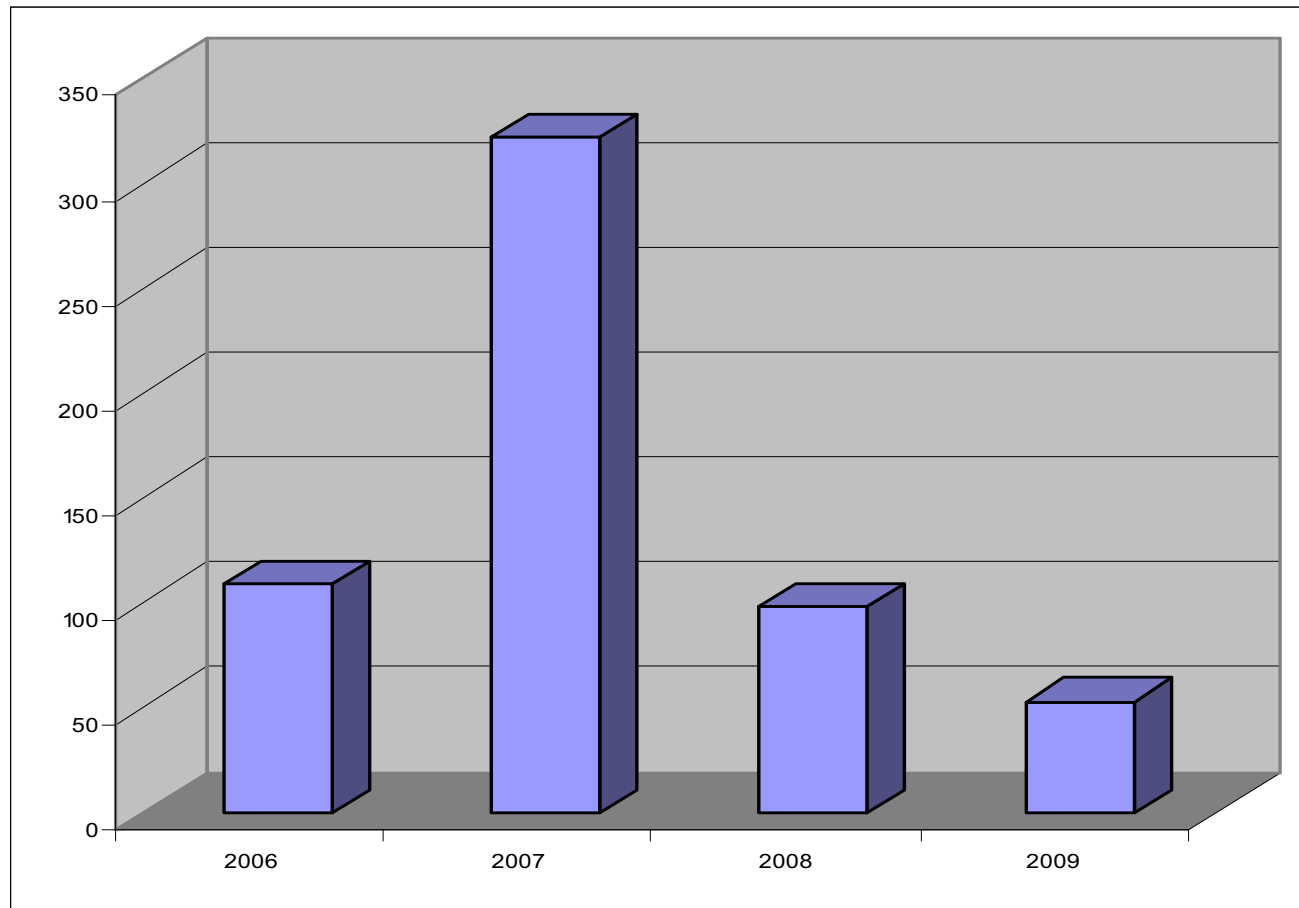
But:

- In accordance with the Strategy of the Environmental inspection for 2007-2010 years:
- In 2007, it will carry out a full inventory of the regulated community and develop a package of guideline documents on state enforcement. This will allow the Inspectorate consistent and integral performance of their tasks; Training for Inspectorate staff; Establishment of information-communication system.
- In 2008, it will continue with staff training and, at the same time will conduct a full inventory of the environmental problems existing in all sectors of economical activities and will give preference to preventive measures. This phase could be characterised as a “institutional development and tolerance” phase in the Inspectorate’s strategy;

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- In 2009 and 2010, the focus will be shifted to inspection and a zero tolerance approach towards violations will be gradually adopted.

There is already developed the draft Law on Inspection of Environment Protection, which will allow inspectorate to implement above mentioned activities.

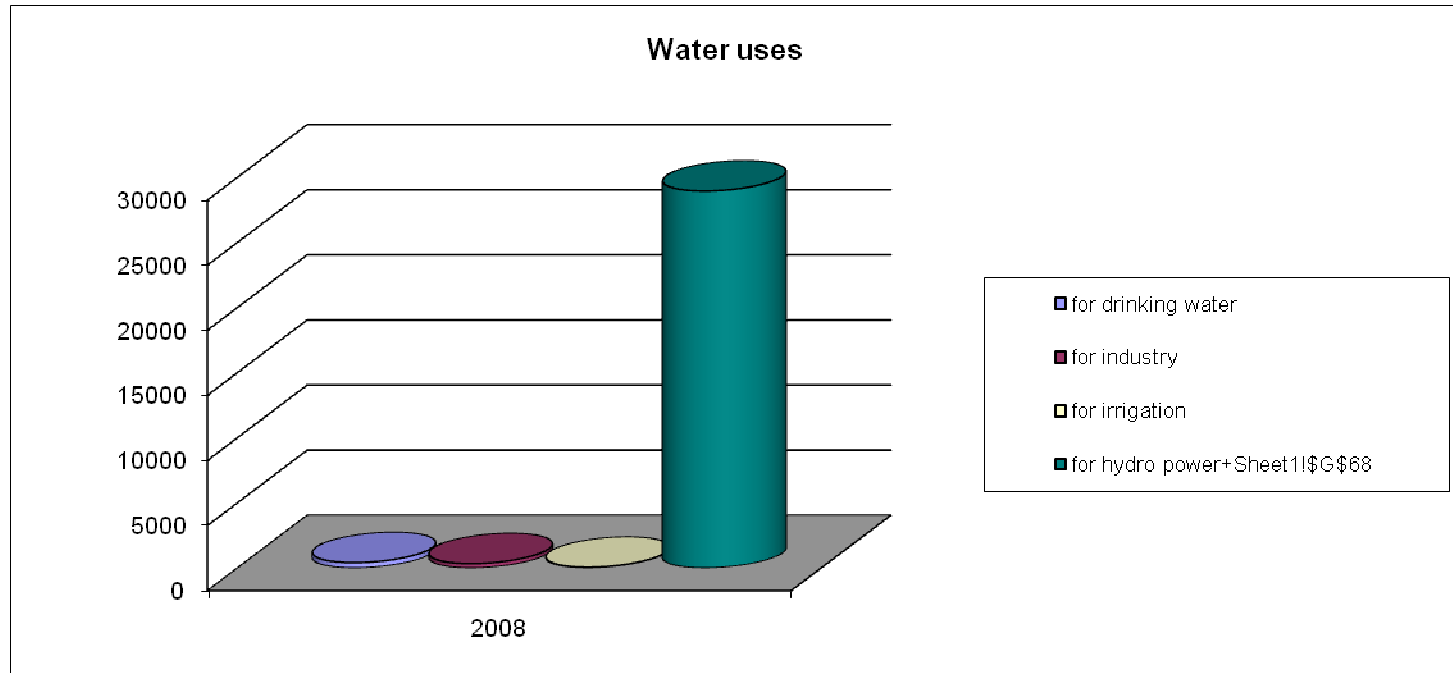
Reveal of the violations in the field of the water resources :



Department of Integrated Management of Environment Water Resources Management Division

- Implements governmental policy of water protection and pollution prevention;
- Establishes and adopts maximum allowable concentration for waste water discharges and assess plans of environmental impact mitigation activities in the field of water resources (MAD and EIA reports)
- Conducts state inventory of water use and wastewater.

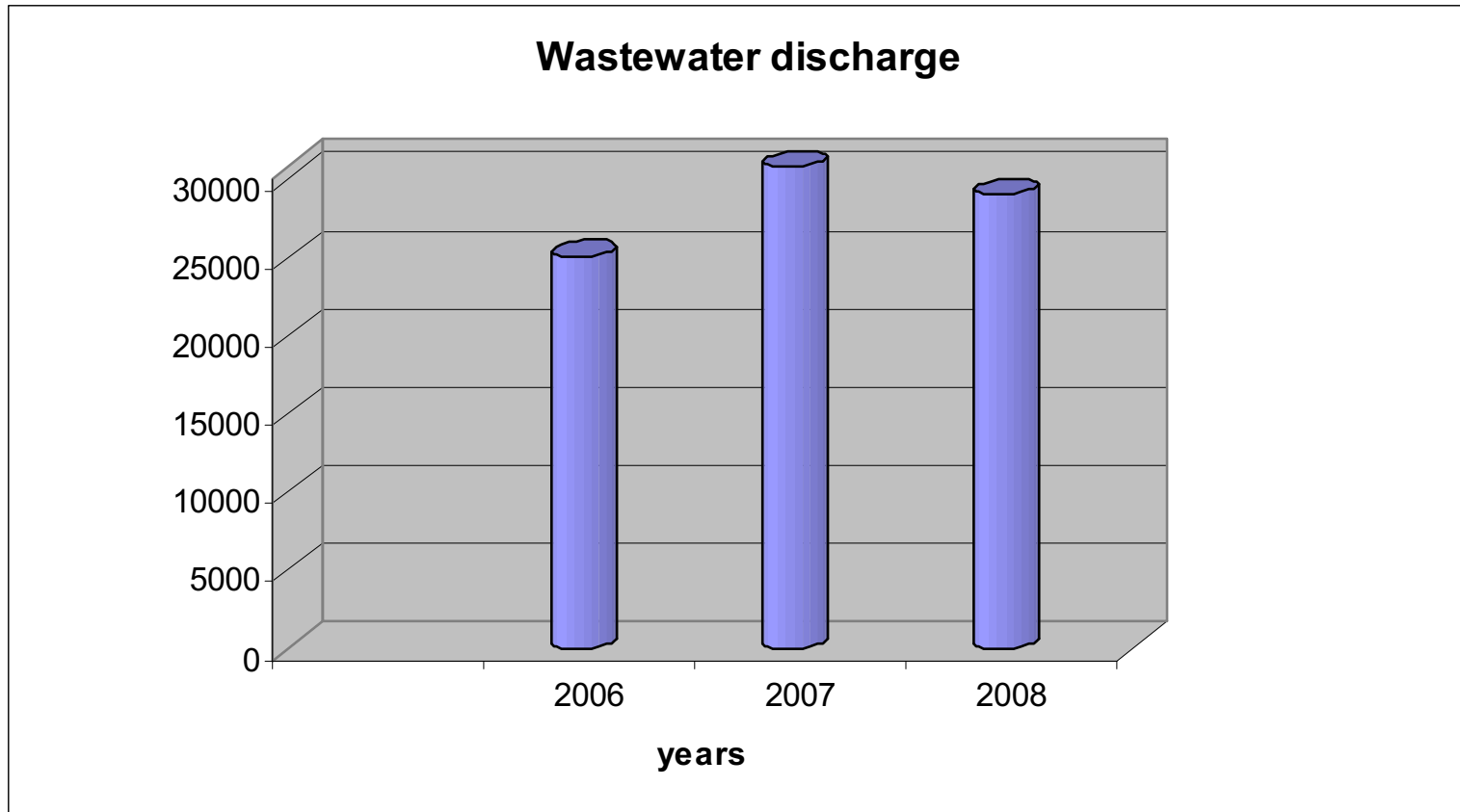
Water Use



Water use in total 29756 mln.m3

- Drinking water supply
- Hydropower
- Industry
- Irrigation

Wastewater Discharge



Problems of Wastewater Discharge:

- ❑ **Main polluters:**
- ❑ Municipal wastewater – 67%
- ❑ Thermal Power stations – 31%
- ❑ Industry– 2%
- ❑ Pollution from the illegal landfills

Agricultural lands
(non point sources of pollution)

Main pollutants are:

- ❑ Nitrogen compounds
- ❑ BOD
- ❑ Suspended Solids



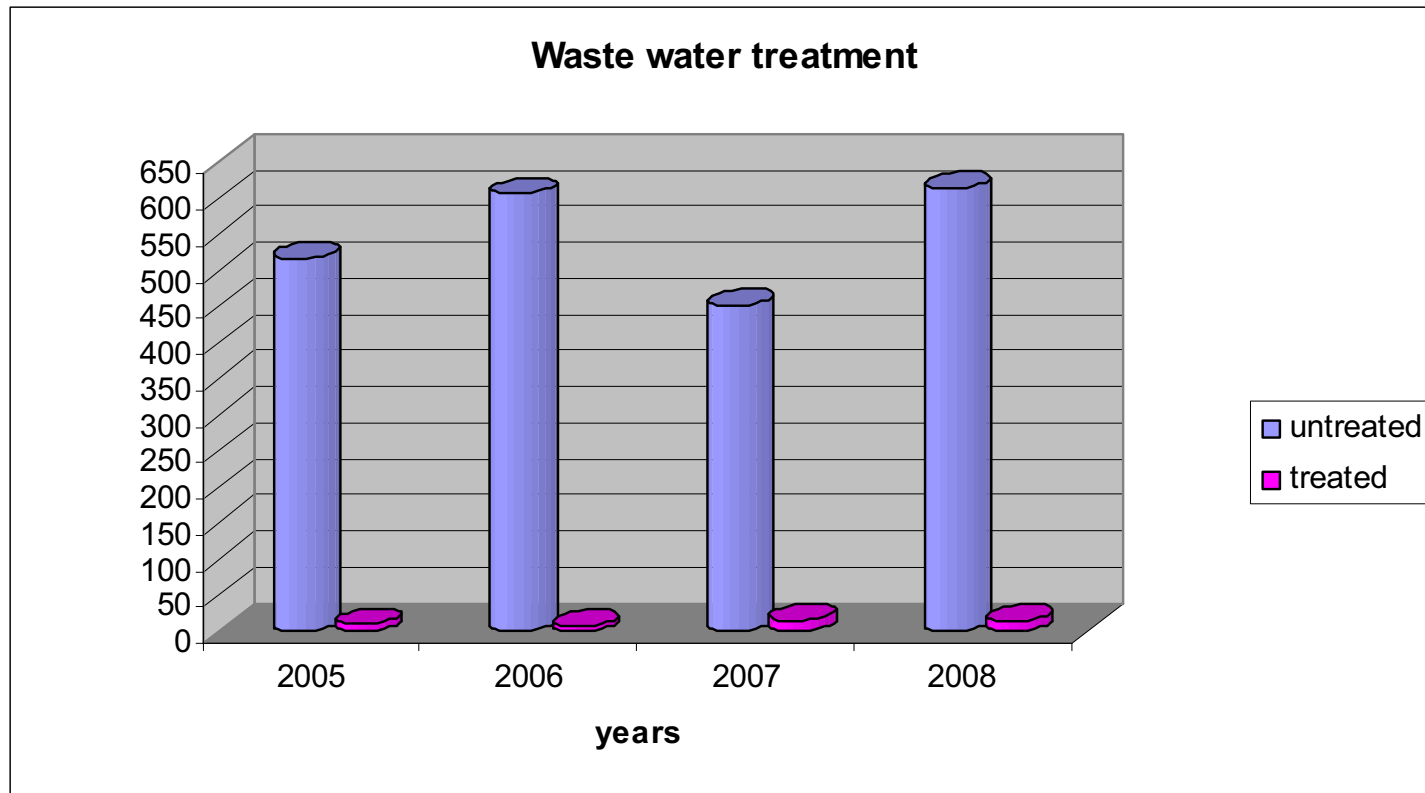
Waster Discharges by the Activities

Activities	water users in total	Discharge			loses in transportation	water reuse
		Untreated discharge water	do not need treatment	treated water		
In Georgia totally	800	614.147	28461.560	13.846	436.604	180.217
Main activities:						
Agriculture	38	0.073	19.826	0.010	180.069	
Irrigation	27	0.062	19.826		180.069	
Fishery	70	1.847	4.841	1.575	0.191	
industry	303	1.317	7.094	9.228	1.151	96.671
Food production	90	0.094		3.813	0.012	0.224
Industry	15	0.109		0.787	0.343	74.114
Metallurgy	3		7.038		0.579	11.288
Energy power	38	255.704	28429.770	0.004	10.932	83.018
Water supply and sanitation	126	353.898	0.026	0.352	244.079	0.253

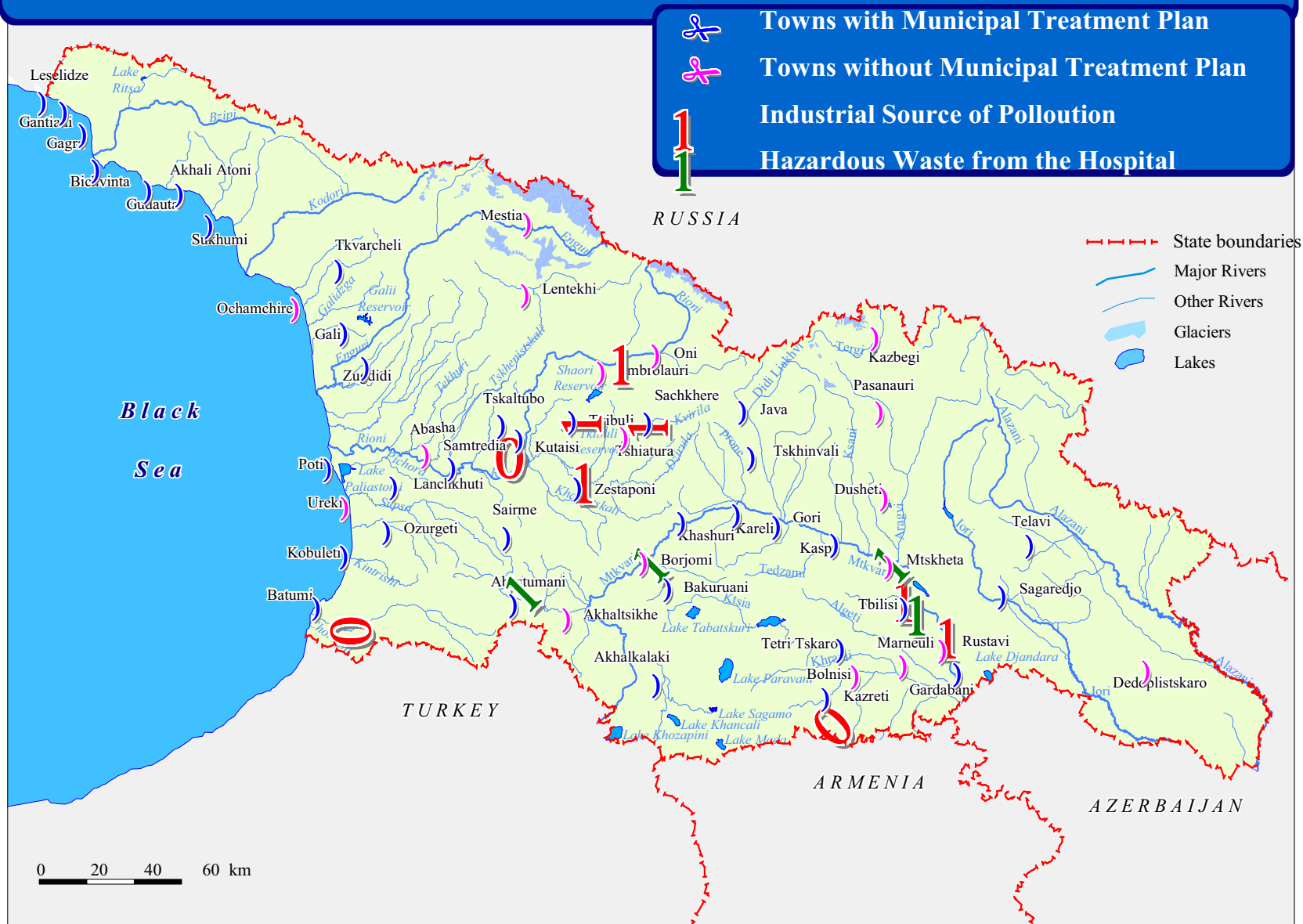
Main Industrial Enterprises

Water Users	Water discharge (thous.m3)	Activities
1. "Madneuli"	357,42	Mining
2. "WiaTurmanganumi"	4620.2	Mining
3. Mtkvari-energy (e.i.s. "mtkvari")	309,1	Thermal power
4. "BaTumi oil terminal"	3300.878	Receive and transportation of oil products

Wastewater treatment



LOCATION OF MAIN SOURCES OF POLLUTION IN GEORGIA



Treatment of Municipal Wastewater

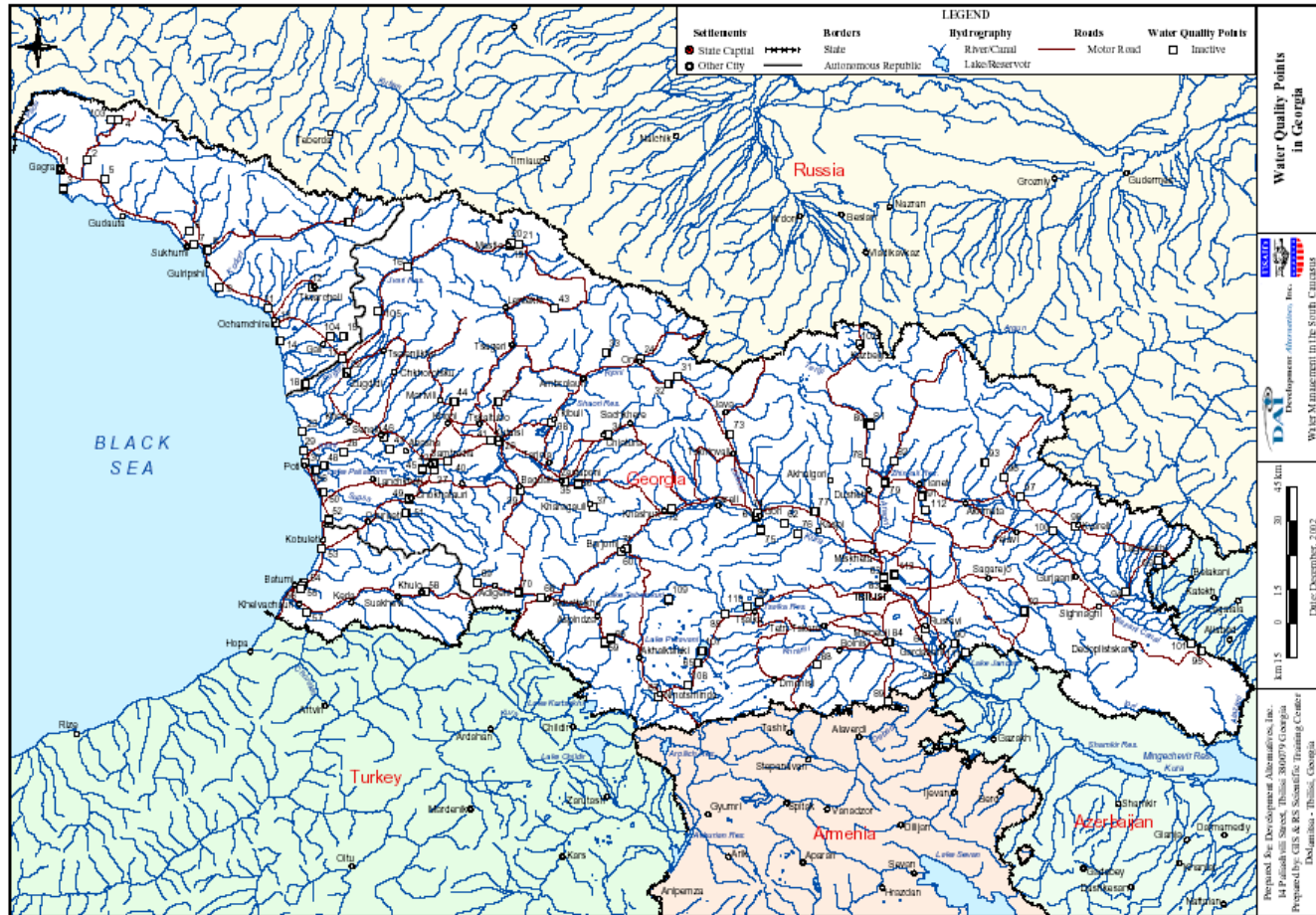


- ❑ Wastewater discharge systems operate in 41 cities and districts, 30 of which have wastewater treatment plants of total design capacity equal to 1,6 mil. m³ a day.
- ❑ Alarming problems exist in collection and treatment of domestic sewage and industrial wastewater. About 80% of pollution comes from municipal sewage systems
- ❑ Most of wastewater treatment facilities has become disabled, and the wastewater is discharged untreated to the open water bodies and therefore ultimately causes contamination of rivers.

Municipal Wastewater Treatment Plants

Town	Technology	Operational Since	Design Capacity
Black Sea Basin			
Kutaisi	MB	1980	Out of order
Batumi	MB	1983	there is already designed new plant
Kobuleti/Ozurgeti	MB	1985	Out of order
Poti	M	1981	Out of order
Sachxere	MB	2007	full operating
Mtkvari River Basin			
Tbilisi/Rustavi	MB	1986	Mechanical only In accordance of president
Gori	MB	1968	Out of order
Telavi	MB	1975	Out of order
Kaspi	M	1978	Out of order
Bakuriani	MB	1978	Out of order
Dmanisi	MB	1983	Out of order
Abastumani	MB	1981	Out of order
Tetrithkaro	MB	1981	Out of order

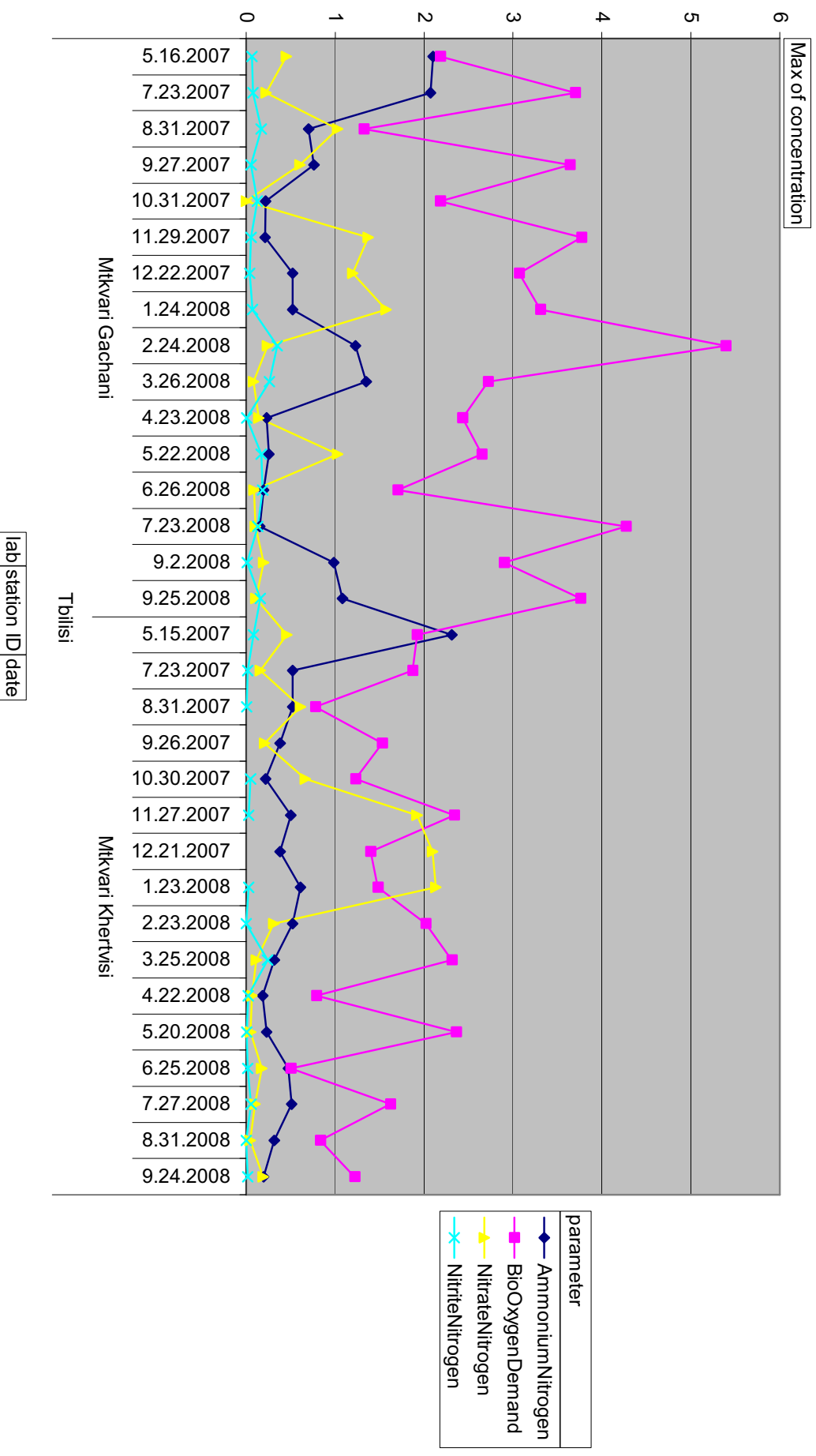
Points of Surface Water Monitoring



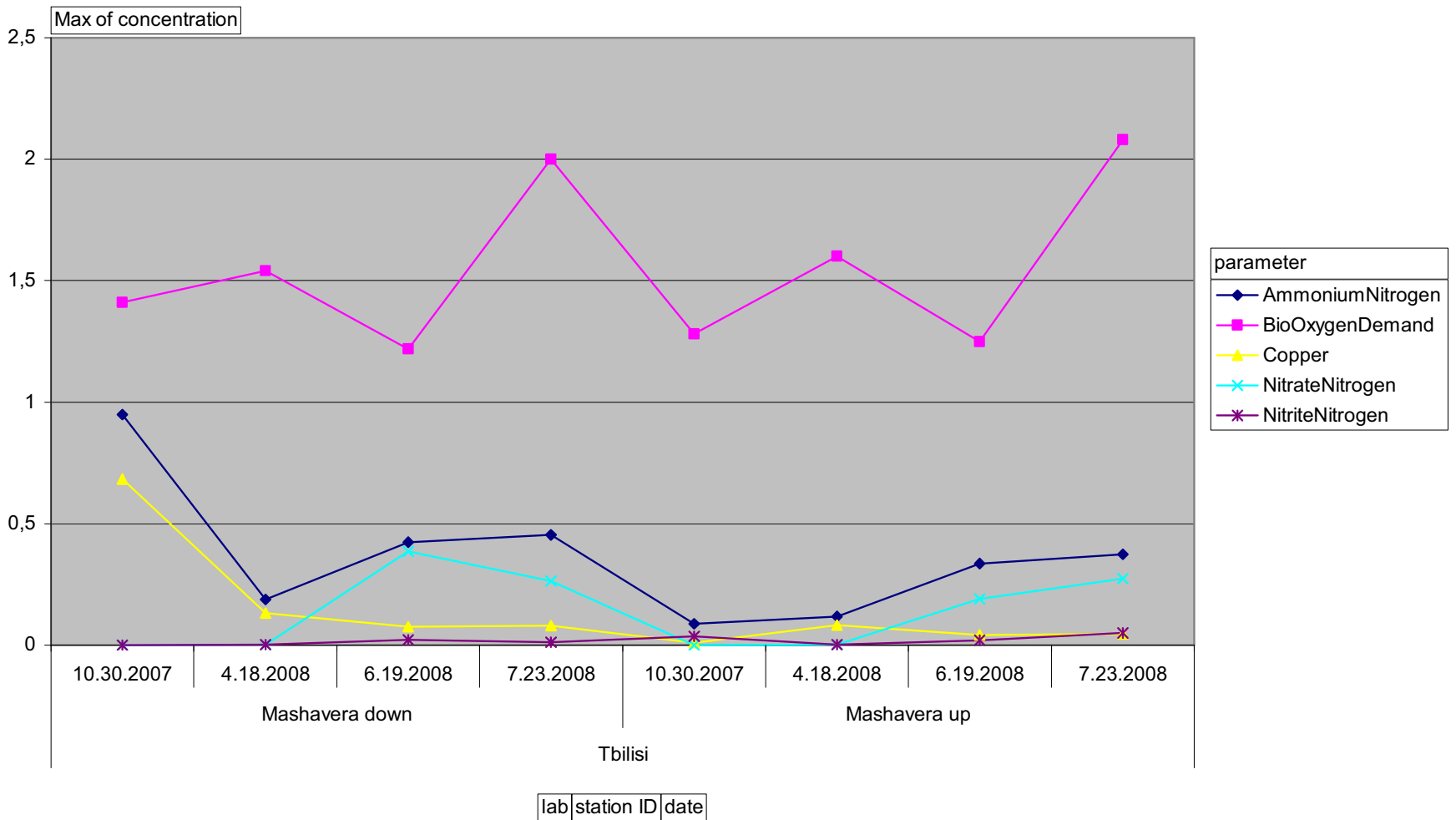
Source of Database: GIS & GIS Software Center "Odisseus"
Source of Location of Water Quality Points in Georgia: State Department of Hydroecology of Georgia

Water Quality Points in Georgia.pdf

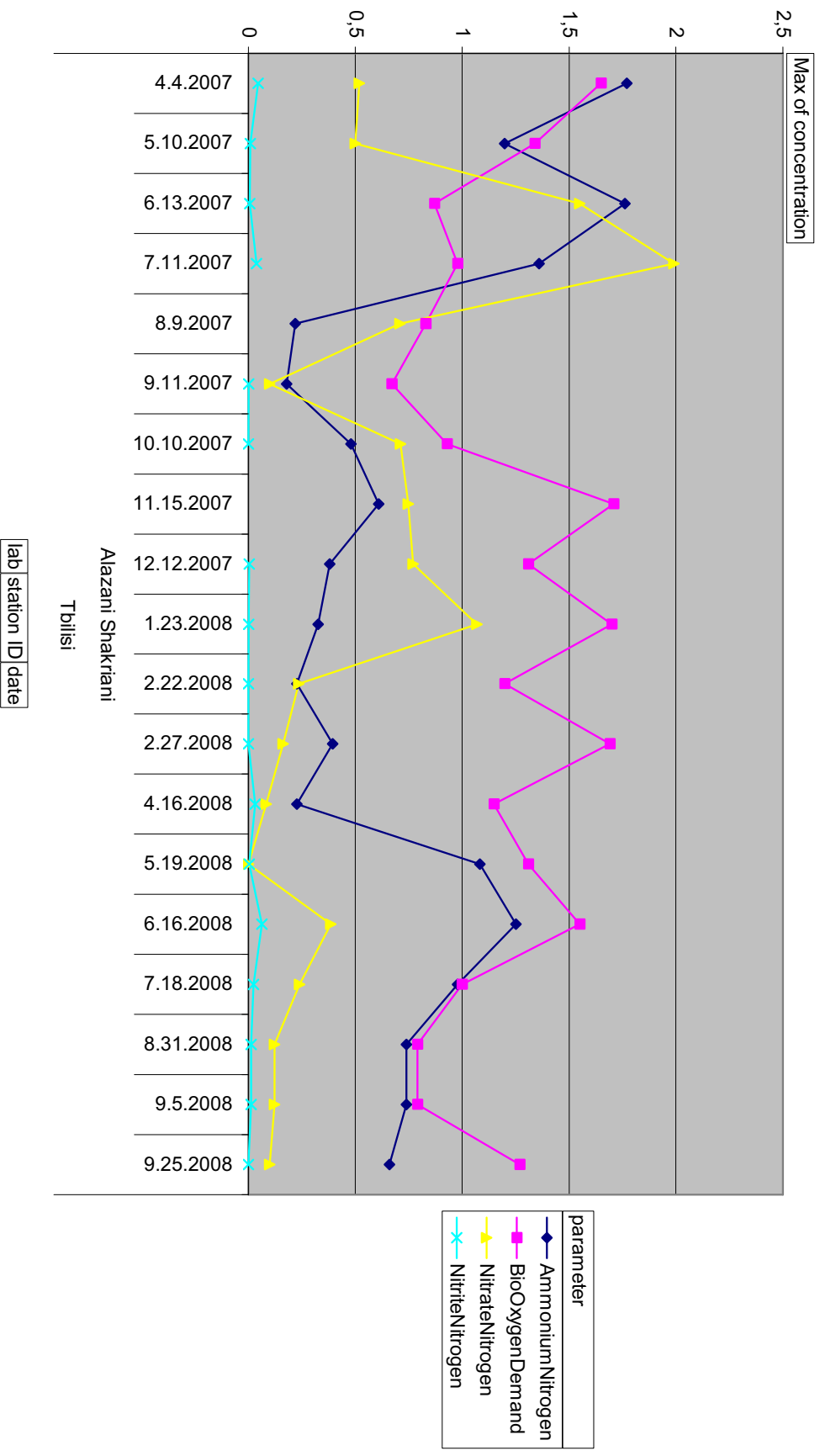
Quality of rivers: Mtkvari river



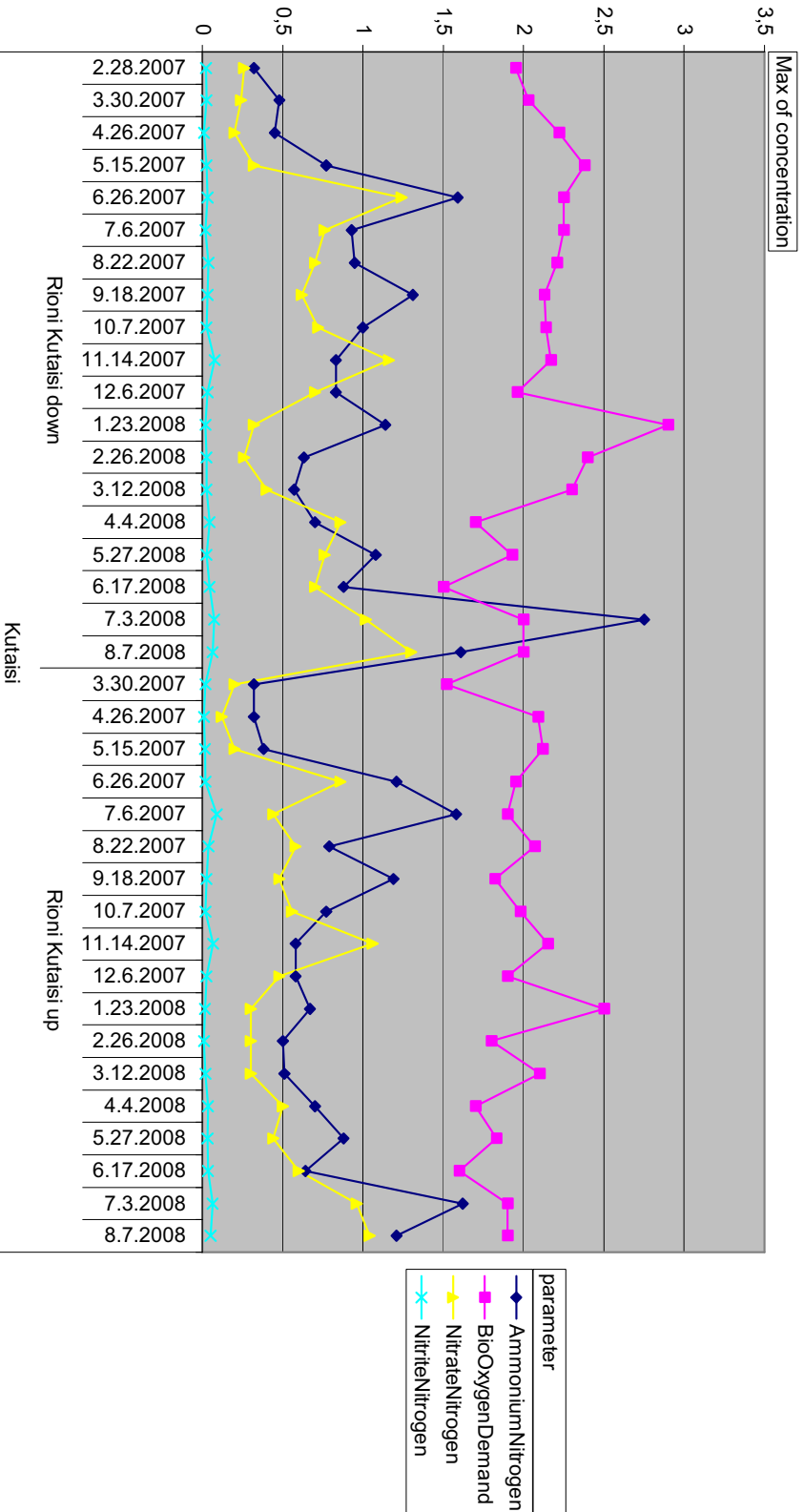
River Mashavera



River Alazani



River Rioni



International issues

All International projects mainly aims to the improvement of monitoring system and Surface Water Quality Standards:

- **Water governance in the Western EECCA Countries**

Revision of Surface Water Quality Standards and Development of Emission Limit Values (ELV) in accordance with international requirements;

- **Trans-Boundary River Management Phase II for the Kura River basin –Armenia, Georgia, Azerbaijan**

Support the establishment of transboundary monitoring and information management system to improve transboundary cooperation in Kura River Basin;

Enhance capacities of environmental bodies engaged in long-term integrated water resources management in Kura River basin.

Elaboration of Pilot River Basin Management Plans for the Alazani river and the Aragvi river

- **Environmental Collaboration for the Black Sea**

Elaboration of the new draft Law on Water

Steps Already Undertaken

- Black Sea costal zone, Kutaisi and Bolnisi regions are defined as priority areas of hot spots
- _ Rehabilitation process of water supply and sanitation system for towns: Batumi, Poti, Kutaisi, Kobuleti, is under way;- (Agency of Water Supply , Ministry of Regional Development and Infrastructure)
- Between MOE and some large enterprises was signed Memorandum of Intents aiming at implementation of the environmental safety program.
- _ Improvement of Environmental Legislation and harmonization with EU Directives has already started

Thank you for your attention!

